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THE GENESEE FARMER.

SATURDAY, DECEMBER 17, 1836.

Thoughts on Warming Rooms.

The maintaining a proper temperature in our dwelling houses through the winter season, can only be accomplished in two ways—by excluding the external air, and preventing the escape of that already warmed.

To exclude the external air, it is necessary that much greater attention be given to their construction and finishing, than is usually paid. There is scarcely a possibility of making our rooms, in which a *wood fire* is to be kept burning, too tight; the very means adopted for carrying off the smoke, will ensure a sufficient circulation, and consequent renewal of the air of the room.

Where coal is used, more precaution is necessary, as in a perfectly tight room fatal consequences frequently ensue from the use of the oxygen of the air in supporting the combustion of the coal. No coal of any kind, should ever be burned in a room not provided with a proper passage for the escape of the vitiated air, and the renewal of the atmosphere of the apartment, by the introduction of that which is pure.

The idea that a room can be too tight, either for a fire-place or stove, in which wood is burned, is absurd; the temperature of such a room may be raised too high, and in properly finished rooms it frequently is so, but that proves nothing, except that fuel has been wasted, and more heat produced than was necessary for the purpose required.

To have a winter residence in this climate comfortable, our dwellings should be constructed with particular reference to that subject. The large airy rooms open to the external air, so requisite in summer, are not at all suitable in winter, and the expenses of most householders are materially increased by inattention in this respect. Show should always be compelled to give way to health and comfort; and these should if possible always be combined with convenience and economy. The rooms to be occupied by the family should be on the least exposed part of the dwelling, and in no case should the doors open directly into the external air. Proper halls and entries assist most materially in the exclusion of winter's blasts.

If a fire-place is used for warming the room, it should be so constructed as to give out as much of the heat as possible into the apartment. To do this the fire-place must be shallow, and in combining with such a one the draft necessary to prevent smoke, and at the same time not be so strong as to force the heated air of the room too rapidly away, lies the great skill of the successful mason. In our opinion an open fire is the most agreeable when properly managed, and we think there is about as much difference in the effect on the feelings, between an open fire and a stove, as there is between the former and that of the sun. We would give one hint to those who use fire-places, and have no wood houses, and that is, never to fill the corners within the jams with green snowy wood for the purpose of drying it. Much of the heat thrown into an apartment is reflected from the back and jambs, and this heat is very unprofitably employed in seasoning green wood or melting snow. Better, where such wood must be used, to put a stick or two at a time on to a lively burning fire, and enjoy an equal temperature, than half freeze while the wood is warming, and then be as effectually roasted while it is burning.

People who use stoves, in close rooms, in most cases live in a temperature much higher than they apprehend, which is probably one great reason why such fires are in general considered less healthy than open ones. Observation has convinced us that this difference between the heat of a room with a stove, and one with an open fire, is not on an average less than six or eight degrees. In the matter of a fire, seeing is believing. Where a stove is used, a thermometer is absolutely essential; for the man who comes from the open air into a room heated to 75 or 80, is not satisfied without an additional stick in the stove.

But whatever may be the nature of the apparatus used for heating a room, whether a stove or a fire-place, let no one dream of a proper temperature, if he intends using green wood. What a black account will be presented to that man for settlement, who shall be called upon to answer for the weak eyes and baconed complexion of his children, and the maledictions of his spouse, occasioned by unseasoned wood. Comfort and economy, domestic quiet and a happy family, and green wood, cannot exist together. G.

From the Silk Grower and Agriculturist.

Seeding Potatoes.

MR. COOKE—I send you the result of an experiment which I made the past season upon seeding potatoes. The land, manure, and culture, was exactly the same.

1. One very large potatoe in each hill,.. ,17
2. Two quarters of a very large potatoe to a hill,..... ,14
3. Two halves of a common sized potatoe,..... ,11
4. Four small ones to a hill,..... ,13

I have reduced the quantities to decimals that the relative proportions may be seen at once. I repeated the experiment in another part of the field, but with the same result. *Large whole* potatoes produced the *best* and *most abundant* crop. In one row I put two large potatoes to a hill, and the yield was a trifle less than where I put only one large one to a hill. If I had planted an acre, and seeded it as in the first case, there would have been about.....340 bushels.
An acre of the second,.....280 "
" " third,.....220 "
" " fourth,.....260 "

The difference between the first and third is 120 bushels, which at 25 cts. per bushel amounts to $30. Now if I should have nothing but little potatoes to plant next spring, I should do well to throw them away and buy large ones at one dollar per bushel; and yet how many there are who are so "short on't" for potatoes, that they are obliged to pick out all that are fit for *planting* to *eat*, and then plant the *leavings*. Says farmer B., I don't know how it is, but I never have more than half potatoes enough, and I plant as many as you. The thing is, you plant *too many*. Such as you plant count up fast. The potatoe has been wonderfully improved, and I think it may be still greatly improved, both in quantity and quality, by planting good seed on good ground, with good cultivation.

LEONARD K. HATCH.

Alstead, Nov. 15, 1836.

Tanning.

A few years since we alluded in general terms to a new mode of tanning, lately invented by Dr. E. S. Bell and Mr. Daniel Bell, of Virginia. From one of the patentees, now in this place, we have been informed that the system has been well received, and the leather has well sustained the test of use. Some have supposed that this operation is effected by the use of heat, acid steam, &c.; this, however, we are assured, is not true, the leading principle being to free the hide from all foreign substances, as grease, &c., together with the weakened liquor from within the *tannin*, has been absorbed, and leave the hide free to receive a fresh charge of the tanning principle, which being unobstructed in its operation by grease or other foreign substance, is left free to act immediately upon the gelatine of the hide; and very soon the tannin, having combined with the hide, the weakened liquor may be again made to give way to a fresh change of stronger. The operation of freeing the hide from these foreign and detrimental substances, is effected by mechanical pressure, by means of rollers passing over the hides when drawn from the vats and laid upon platforms adapted for the purpose. In order to effect this compression conveniently, the vats and platform are so arranged as to enable the workmen to pass them through the operation with great facility and ease. In order, too, that the ooze may act as freely as possible, the hides are suspended in the vats, which adds likewise to the convenience of passing them successfully under the roller.

While the steaming and heating process which had been heretofore proposed, and in some instances reduced to practice, injures the leather, by cooking it so as to make it harsh and unfit for use, we can see nothing in the above calculated to produce that effect; and we are assured that the process differs from all that can now be found in the patent office or in practice. We learn also, that a more perfect union appears to take place between the material of the hide and the tannin, than under the old method, which has been proved by submitting the action of chemical agents. The time necessary for the perfect tanning of a hide varies from two to eight weeks, as has been proved by repeated experiments; it is then at the option of the tanner to permit it to lie longer, or to finish it immediately for sale.

We have not attempted to detail the plan of these gentlemen, or even to allude to many parts of their process; we only desire to call the attention of tanners and others interested, to the fact, that good leather may be made by a much shorter process than some have thought practicable; and to impress the distinction between tanning by steam and the mode here proposed. We know there is a mountain of prejudice

against innovation to be overcome, but while improvements are being made in every branch of business, why should this important operation remain stationary? Here is a plan proposed by which labor is to be saved—time to be saved, (and time is money, especially to the man of small capital)—a good article is to be produced—and the experiment is not expensive. It is surely worth an attentive investigation; and the patentees say they ask no more. If they cannot effect all that they propose, they ask no man to adopt their system. Mr. Daniel Bell will remain in Zanesville a few days, and will give full satisfaction on the subject; and at any time a letter addressed to Dr. Edward S. Bell, Middleway, Jefferson county, Va. will receive prompt attention.

We are requested to say, that the patentees hope editors will give such notice of their plan as they think proper.—*Zanesville Gaz.*

Medicinal Properties of the Tomato.

Of the hygienic, or healthful properties of the tomato, Prof. Rafinesque says,—"It is every where deemed a very healthy vegetable, and an invaluable article for food."

Prof. Dickson writes,—"I think it more wholesome than any other acid sauce."

Robley Dunglison, M. D., late Professor in the University of Virginia, and now of the University of Maryland, says,—"It may be looked upon as one of the most wholesome and valuable esculents that belong to the vegetable kingdom."

Many other like authorities might be quoted in proof of its hygienic powers, but I consider it unnecessary; I will only add that I am led to admire at the folly and infatuation of many of my professional brethren, in carrying forward the sword of devastation against the health and happiness of the human family, in the support of deleterious substances, to the utter exclusion of this article, whose salutary and benign influences upon all who use it, are so apparent and perspicuous that the most ordinary observer can but appreciate them, as well as the most scientific practitioner of the healing art; but I choose to tread the rugged path of duty in placing its virtues before an intellectual and reading community—my fellow citizens. For acts of this kind, according to Virgil, we may even claim the best delights of Elysium; for he says they "were showered upon those who received wounds for their country, who lived unspotted priests, who uttered verses worthy of Apollo, or who, like Very, consecrated their lives to the useful arts."

Mr. Thomas writes me—"I have no positive evidence within my own experience of its medical properties, though the sauce is very grateful to persons recovering from fever. The late Doctor H. G. Spafford says,—'I often find myself incommoded and my health impaired by inaction of the stomach and bowels. This is always in some degree accompanied with a sense of straitness of the chest; and besides a general uneasiness and lassitude, with head-ache and some degree of pain in the region of the liver. The appetite becomes imperfect, with a peculiar taste of the mouth as if something was wanting. The tomato at once removes the taste of the mouth; in a little time quickens the action of the liver and bowels, and removes all those symptoms and feelings. It seems to me that of all articles of diet or medicine that have come to my knowledge, the tomato acts most directly upon the liver. Several other persons of my acquaintance have derived similar benefits from its use. It has saved me from the necessity of using cathartics."

Prof. Rafinesque says,—"As a medical article for the liver, etc., it is a new fact, unknown even in Europe and India."

The Indians use it as a diuretic, and to expel concretions from the kidneys. E. B. Barton, M. D., Professor in the Medical College of Louisiana, writes me under date—

New Orleans, Nov. 28th, A. D. 1835.

"I have read your publication on this subject (the tomato) with great interest, and if subsequent experience shall sustain your position of its having a specific influence on the liver and being a substitute for calomel, you will confer lasting benefit upon your country, and erect an enduring monument to your own reputation. In it I most cordially wish you success, both as a philanthropist and an American—and I feelingly do it after having, for 16 years, witnessed the horrible ravages committed by calomel."

I have used it with decided advantage in a variety of complaints, and hope to be able to exhibit its remedial powers in so lucid a manner that all attempts at refutation will prove illusory and vapid. I shall consider its medicinal agency as applicable to special cases, under separate heads.

Dyspepsia (indigestion.)

In a public lecture, introductory to my course in the Willoughby University of Lake Erie, in the fall of 1834, I stated that the tomato, when used as an article of diet, was almost a sovereign remedy for dyspepsia, or indigestion: and from subsequent experience I am more fully confirmed in the opinion. The tomato effects a cure in dyspeptic cases—

1st. By its power of solution. Since my appointment in the University of Bellevue Hospital, I have received testimony of an indubitable character, that the tomato possesses, in an eminent degree, the power of dissolving the food in the stomach, and thus supplying the place of the gastric juice, when there is a deficiency in the secretion of that fluid, (and there usually is in such cases,) either in quality or quantity; and that it is, undoubtedly, out of the body, in the same temperature, a most powerful solvent.—*Dr. Cook's Treaties.*

On Wintering Cattle.

Every thing practicable should be done to make cattle comfortable during our cold winters, both for the purpose of saving fodder, and increasing the profits of stock. As cattle require less food in warm weather than they do in cold, so it is evident that a great saving may be made by keeping them warm in winter, and if stock be kept in a comfortable state during the severe cold, cows will give more milk, and stock in general will be worth much more in the spring, and it will not require several months of good feed to enable them to recover from the wear and tear of a cold season. Cattle suffer a great deal by standing out exposed to severe cold, especially after drinking heartily of cold water. We would therefore recommend that they be immediately tied up in a warm stable after having been watered, which should be done every morning and evening. By following this plan during very severe weather, we doubt not the saving of fodder will pay for the extra time, besides, there will frequently be a saving of manure, and cattle will be in a much better condition than if allowed to stand shivering in the cold. Some farmers do not pay sufficient attention to making their *tie-houses* warm. There is no danger of making them too warm if they be left open in front in order that cattle may breathe the pure air. If the house be open at top, it should be covered as close as convenient with boards, and straw, or other litter, or hay, should be thrown over it to keep the cattle warm. It is impossible to keep a house warm while it is exposed underneath. It should be made close and tight under the sills by boards, banking up, or plastering, &c. A little time in this way will frequently add much to the comfort of stock, and save much time, as it will prevent the manure from freezing to the floor.—*Yankee Farmer.*

From the Vermont Farmer.

Potatoes.

And as I have an opportunity I will send you the result of an experiment which I made in planting potatoes, in 1835, to which, if you think it will be of any use, you can give a place in your paper.

I had ever supposed that the *seed end* of the potatoe was nearly all that was valuable for planting; but the result of my experiment was the reverse of this. I had supposed that small ones were nearly as good as large ones; but from experience I am convinced that it is a mistake.

I planted one row of *seed-ends*, two in a hill, one, with one in a hill; one, with two smallish potatoes, about as large as hen's eggs, in a hill; one, with one *root end*, in a hill; and one, with one large potatoe in a hill. Of these five rows, the two last exceeded the rest, by more than all the seed that was planted in them—the last of the two exceeded the other.

As it is a time when people feed potatoes to cattle, I would recommend to select the largest, and preserve them till seed-time. And one thing more,—see to it that you have some of the *best kinds* of potatoes; for the potatoe is an important crop in these cold seasons.

JULIUS HAZEN.

Hartford, Nov. 2, 1836.

From the Encyclopedia of Agriculture.

Characteristics of Flemish Husbandry.

To make a farm resemble a garden as nearly as possible, was their principal idea of husbandry. Such an excellent principle, at first setting out, led them, of course to undertake the culture of small estates only, which they kept free from weeds, continually turning the ground and manuring it plentifully and judiciously. Having thus brought the soil to a just degree of cleanliness, health and sweetness, they ventured chiefly upon the culture of the more delicate grasses, as the surest means of acquiring wealth in husbandry, upon a small scale, without keeping many draught horses or servants. After a few years experience, they found that ten acres of the best vegetables for feeding cattle, properly cultivated, would maintain a larger stock of grazing animals, than forty acres of common farm grass; and the vegetables they generally cultivated for this purpose were lucerne, sainfoin, trefoils of most denominations, sweet fenu-greek, (*Trigonella,*) buck and cow wheat, (*Melampyrum pratense,*) field turneps and spurry, (*Spergula,*) by them called marian-grass.

The political secret of Flemish husbandry was, the letting farms on improvement. Add to this, they discovered eight or ten new sorts of manures. They were the first among the moderns who ploughed in living crops, for the sake of fertilizing the earth, and confined their sheep at night in large sheds built on purpose, whose floor was covered with sand, or earth, &c. which the shepherd carted away every morning to the compost dung hill. Such was the chief mystery of the Flemish husbandry.

Urine cisterns are formed in the fields, to receive purchased liquid manure; but for that made in the farm-yard, generally in the yard, or under the stables. In the latter case, the urine is conducted from each stall to a common grating, through which it descends into the vault; from thence it is taken up by a pump. In the best regulated farmeries there is a partition in the cistern, with a valve to let the contents of the first space into the second, to be preserved there free, from the more recent acquisition, age adding considerable to its efficacy. This species of manure is relied on beyond any other, upon all the light soils throughout Flanders, and even upon the strong lands, (originally so rich as to preclude the necessity of manure,) is now coming into great

esteem, being considered applicable to most crops and to all the varieties of soils.

Fallows, according to Sir John Sinclair, are in a great measure abolished, even on strong land; by means of which, produce is increased, and the expense of cultivation on the crops raised in the course of a rotation, necessarily diminished: and by the great profit they derive from the flax and rape, or coleseed, they can afford to sell all their crops of grain at a lower rate. Notwithstanding this assertion of Sir John, it will be found that a fallow enters into the rotation on all the clayey soils of Flanders.

Flax is cultivated with the utmost care. The field intended for this crop, after two or three ploughings and harrowings, is again ploughed, commencing in the center and ploughed round and round to the circumference, so as to leave it without any furrow. The heavy roller is drawn across the ploughing by three horses; the liquid manure is then spread equally over the entire surface, and when well harrowed in, by eight or nine strokes of the harrow, the seed is sown, which is also harrowed in by a light harrow with wooden pins, of less than three inches; and the surface, to conclude the operation, is again carefully rolled.

Nothing can exceed the smoothness and cultivated appearance of fields thus accurately prepared.

The manures universally used for the flax crop, demands particular notice. It is termed liquid manure, and consists of the urine of cattle in which rape cake has been dissolved, and in which the *vidanges* conveyed from the privies of the adjoining towns and villages, have also been blended. This manure is gradually collected in subterraneous vaults of brick work, at the verge of the farm next to the main road. Those receptacles are generally forty feet long by fourteen wide, and seven or eight feet deep; and in some cases are contrived with the crown of the arch so much below the surface of the ground, as to admit the plough to work over it. An aperture is left in the side, through which the manure is received from the cart by means of a shoot or trough, and at one end an opening is left to bring it up again, by means of a temporary pump which delivers it either into carts or tonneaus.

The liquid is carried to the field in sheets or barrels, according to the distance. Where the cart plies, the manure is carried in a sheet called a *voile*, closed at the corners by running strings, and secured to the four uprights of the cart; two men, standing one on each side of the cart, scatter it with hollow shovels upon the rolled ground: or where the tonneaus are made use of, each is carried by two men with poles, and set down at equal intervals across the field in the line of the rolling.

There are two sets of vessels, which enable the men who deposit the loaded ones, to bring back the others empty. One man to each vessel, with a scoop or rather a kind of bowl with a long handle, spreads the manure so as to cover a certain space; and thus by preserving the intervals correctly, they can precisely guage the quantity for a given extent of surface. For the flax crop they are profuse and of this liquid mixture, in this part of the country, they usually allow at the rate of 2480 gallons, beer measure, to the English acre.

With culinary vegetables the Flemish markets are abundantly supplied. Most of these are grown by the small farmers, and are of excellent quality. To every cottage in Flanders a garden of some description is attached; and according to the means, the leisure, and the skill of the possessor, is rendered more or less productive. The general principles of management with all are, frequent digging, careful weeding, ample manuring, and immediate succession. The rotation depends on circumstances. The chief vegetables in common use are parsnep, carrot, turnep, scorzonera, savoy, jettechou, cabbage, (Brussels sprout,) onions, leeks, pease, beans, and all kinds of salading, with another kind of vegetable called *feve haricot*, a large species of French bean, which has a place in the field or garden of almost every farmer; and being sliced down, pod and seed, is made an ingredient in all farm-house cookery.

The treatment of asparagus here, and generally in Flanders, differs considerably from our method: in forming their beds, they are not by any means particular as to very deep trenching, or a profusion of manure; nor, as they grow up, do they cover the beds with litter for the winter, nor fork and dress them in the spring; in the furrows they form a rich and mellow compost of earth and dung, with which before winter sets in, they dress up their beds to the height of nearly eighteen inches from the level of their crowns, and without any further operation, (except supplying the furrows again for the ensuing year,) as soon as the buds appear, they cut them nine inches under the surface; by which means, having just reached the light, the whole of the stock is blanched and tender.

Every substance that constitutes, or is convertible to manure is sought after with avidity, which accounts for the extreme cleanliness of the Flemish towns and pavements, hourly resorted to with brooms and barrows, as a source of profit. Even the chips which accumulate in the formation of shoes worn by peasantry, are made to constitute the compost dung heap; and trees are frequently cultivated in barren lands, merely to remain till their deciduous leaves shall in the course of time, have formed an artificial surface for the purpose of cultivation. The manures in general use are—

The farm-yard dung, which is a mixture of every matter that the farm-yard produces, formed into a compost, which consists of dung and litter from the stables, chaff, sweepings, straw, sludge and rubbish, all collected into a hallow part of the yard, *so prepared as to prevent the juices from being wasted;* and the value of this, by the cart load of 1500 lbs. of Ghent, is estimated at five francs.

The dung of sheep, pigeons or poultry, by the cart load, five francs and a half.

Sweepings of streets and roads, same quantity, three francs.

Ashes of peat and wood mixed, same quantity, eight francs.

Privy manure and urine, same quantity, seven francs.

Lime, same quantity, twenty-four francs.

Rape cake, per hundred cakes, fifteen francs.

Gypsum, sea mud, and the sediments of canals, have been all tried experimentally, and with fair results; but the two former have been merely tried; the latter is used successfully in the vicinity of Burges.

Bone manure was altogether unknown in Flanders, but at the suggestion of Radcliff, is now under experiment in that country.

From the Farmer's Register.

Account of a Sheep on two legs.

CRAWFORD COUNTY, Pa. July 18, 1836.

As any thing of interest connected with domestic animals would be gratifying to know, allow me to give you an account, in few words of a lamb which walked on two legs.

Being on a visit to a frind of mine some short time since, my attention was directed to a lamb, which having been brought forth unexpectedly to the owner, in a very inclement season early in the spring, lost both of its hind legs very near the body. The poor animal was suffered to live—and when I saw it, could travel (upon its two fore legs) as nimbly as any of the flock, and that without raising the hind quarters, so that the center of gravity should fall upon the fore legs. I consider the circumstance of a nature most extraordinary, and well worthy to be recorded. The animal must be endued with extraordinary muscular power: its hind parts while it is walking, standing, or eating, maintain very nearly their natural position—a little higher if any thing. It sometimes gets on it knees and eats, without however, touching any other part of its body to the ground. While I was observing it, it leaped over a stick without any difficulty and lit on its feet. The animal is in good condition, and likely to live as long as any of the flock.

JOS. C. G. KENNEDY.

Anti-Cattle Choker.

Our worthy friend, Paine Wingate, has left in our office, an instrument with the above title. It is what is *vulgarly* called a tarred rope, and we should call it a very useful and efficient instrument. There should be one in every neighborhood, for it is a fact that cattle are liable to get choked, the world over, and being choked, ought to be relieved by the aid of man. But why is a tarred rope better for this purpose than a *cordwood stick?* For various reasons. It is sufficiently stiff to effect the business, nine times in ten, and at the same time has that kind of elasticity which will accommodate itself to a position or passage not entirely straight.

In order to make one, take a piece of tarred rope, say an inch in diameter, and six feet long. Untwist it three or four inches at the end, and leave a tuft of it loose, in order to make a kind of ball or swablike end—then wind around it a piece of canvass or cloth, in order to make the surface smooth, and over this roll or wind some spun yarn tightly and smoothly In cold weather this rope should be warmed a little before using, and in warm weather it is well to wet it. When about to use it, the tuft at the end should be tarred back, and this will make a soft but sufficiently solid bulb to fill the gullet when it is pushed down.—*Maine Farmer.*

Seed Hod.

The above gentleman has also deposited for a short time, a vessel called a lift or seed hod, an implement well known in some places, but not seen in this vicinity very often. It is simple in its form and construction, and its use is to carry seed and other things when sowing. It is of an oval shape, with sides bent in somewhat like the body of a fiddle. On one side is a hook and on the other an upright handle. When in use it has a band put over the shoulder, and hooked into the hook; this brings it up snug to the left side of the body, and the left hand takes hold of the upright handle, while the right hand is at liberty to scatter the seed. We hope some of our coopers will call and look at it, and "*get about*" making some of them for this market.—*Ib.*

COMMUNICATIONS.

Wheat Turning into Chess.

BY A. B.

"An Old Farmer" has given some excellent advice on the subject of sowing clean seed-wheat; and I cordially join him in adopting the maxim of the Apostle: "Whatsoever a man soweth, that shall he also reap;" for no other truth perhaps, has more generally received the assent of mankind.

The "Farmer" however, has reported two cases as exceptions to this general rule. From the tenor of his article, I am free to admit his candor and rectitude of intention; but as I have never had an opportunity to observe any such deviations from the common course of Nature, he must excuse me if I draw a different conclusion.

The circumstances of his "small patch of land," are not described with sufficient minuteness to be entirely satisfactory; but if it was the commencement of a new farm in the woods, I think the phenomenon may be easily explained. I have been a forester; and have never seen a new settler who was very particular about his seed-wheat. His situation is very unfavorable to that kind of care. In a place where good fanning mills are not to be found, it would not be surprising to me if more than "fifteen hundred grains of chess to the bushel," should escape his notice. What then follows? He had a good crop of wheat which stunted the chess, but enough of the latter was left among the stubble to seed the ground. Many farmers do not distinguish wheat from chess before it heads out.

In the case of wheat stalks producing chess, I wish the "Farmer" distinctly to understand that I do not question his *veracity*, but the closeness of his *observation*, for many people *look at* things rather than *examine* them. He who uses a microscope is less liable to be mistaken. I am also a *farmer*, but I never saw a stalk of the common wheat produce more than one head; and I doubt if such a stalk can be made to throw out branches. I doubt if there is either bud or rudiment of a bud to be found in its whole length. In this case, the "Farmer" will have no way to convince me, but by producing specimens.

The "Farmer" says, "When the regular operation of nature is obstructed, singular results often occur." I suppose he means the operation of nature *in vegetables;* and the remark is true to some extent, but not so far as to reach his case. I have seen a mutilated stalk of the potatoe, produce small tubers highly colored from being exposed to the sun; and florists say that bulbs may be made to grow on the stems of lilies by lacerating the leaves. Such instances however, only show the efforts of nature to preserve the kinds. She does not turn them into *other* plants. A. B.

Culture of Silk.

Mr. L. Tucker—The Gen. Farmer and Silk Culturist have excited the attention of some individuals here to the culture of silk and the sugar beet. We have commenced operations, and shall "go a head" next spring. By way of experiment, I fed a few thousand silk worms last summer, on the foliage of the white mulberry trees, distant two miles. My family loved the dear little insects so well, that nothing for the comfort and growth of the worm was neglected. The parlor was used for a cocoonery; a fire was kept in the room during the cold storm, and the window was raised in hot weather, for the benefit of air. Some of the worms measured 4 inches, on the hurdles. Two thousand of the cocoons measured a bushel with the floss removed, and the length of thread from one selected, 2,500 feet. From published accounts, I supposed cocoons, so large and fine, could not be raised from the white mulberry—that no other than the most tender foliage of the Morus multicaulis could be made to produce such large cocoons.

Last may I purchased of Mr. Rowe the genuine Morus multicaulis grown from the layers the preceding year, 2 doz. for $6, 22 of which grew and have produced me 240, worth $60. The Messrs. Prince & Son sold me, at $30, 500 of the Chinese cuttings, and only 88 vegetated, the remainder were dead when received. The articles will not bear transportation any great distance, and should not be cut until spring—so we are at last informed, and by me it will be remembered.

A paper of seed was sent to me from Northampton, labeled *Murier de China*—the agent writes—"Sir: Enclosed is a paper of Ch. Mul. seed, $5. You can have more if ordered soon. —*C. P. Huntington, for S. W.*" The seed was planted according to directions, watered and tended with the utmost care; but dear sir, you may imagine how great was my disappointment when only sixty seeds could be made to vegetate of the 1700 contained in the paper, not 4000!—and last and worst of all, the plants appear to be no other than the white mulberry. If Mr. W. has practiced so base a fraud upon the silk growers of the United States as thus to vend a spurious article for the Multicaulis, I agree with Mr. Rowe, that such an individual should be chastised in all our public journals, and made to smart for the base imposition he has practiced.

I am, sir, yours, &c. Jona. Swett.

Ridgeway, Dec. 7, 1836.

Buckwheat Straw.

A correspondent, who signs himself "A Yankee Farmer," asks us whether any use can be made of his buckwheat straw? Our reply is, that it is better for milch cows than the best timothy hay—that his cows will eat it with equal avidity,—that if it has not been exposed too long to the vicissitudes of the weather, it will prove equally nutricious to them—that so far as the secretion of milk is concerned, it is infinitely preferable to any hay or fodder within our knowledge, and that when cut and boiled, or steamed, it makes most acceptable slop for the cows. We will say further, that the "old plan" of throwing this wholesome and nutricious provender upon the dung-heap, or in the barn-yard, to be trampled under foot, should be abandoned, and that henceforth it should be permitted to assume its proper rank among the choicest hay for neat cattle.—*Baltimore Far.*

Silk in Russia.

The United States is not the only nation engaged in introducing and promoting the culture of silk. The Autocrat of Russia is zealously engaged in promoting the growth of silk and the sugar beet in his extensive dominions. During the last year, 75,000 mulberry trees were planted, and 8504 pounds of silk growed. Twenty-seven steam engines have been ordered from England, to be used in the manufacture of sugar from the Beet.—*Ib.*

Morus Multicaulis.

To the editor of the Farmer and Gardener:

I have so many applications for information how to prevent the Morus Multicaulis from injury by winter weather, that I have concluded to give you my ideas on the subject for publication in the Farmer and Gardener.

If the Morus Multicaulis is planted on *high dry ground*, it will never suffer from the frost of winter. It is only when cultivated on low, rich, and often rather wet soil, that the winter ever injures them. I never lost a tree nor a but; but I always cultivated them on high and poor soil, and raise the young trees from cuttings in a hot-bed, in the manner described in my letter in your Silk Manual, to give them an early start that they may ripen their wood perfectly before the severe weather of the Fall set in. To preserve the Morus Multicaulis trees from frost you may either wrap them well in straw as they stand in the ground, or take them up, and bury their roots in the ground of a cellar, or under a shed open to the south, throwing straw or bass-matting over the tops, and set them out again in the spring on *high ground*, where they will want no other protection in future. Cuttings may be taken off in the fall and buried in the ground a foot deep, and they will keep perfectly fresh to plant in the spring, or they may be wrapped in green living moss, packing it in a box close, and put in a cellar. The branches that grew this last season are the proper ones for cuttings.

Yours, &c., &c.,
GIDEON B. SMITH.

From the Farmer's Series of the Library of Useful Knowledge.

Soils.

Imperfect as was the knowledge of husbandry in former times, yet our forefathers were enabled to distinguish the qualities of the soil with great accuracy; for those parts which were the most anciently cultivated, and which formed the infield land around their villages, are found at the present day to consist of the best ground when in its natural state; though much of that which has been since broken up has been greatly improved by the application of manures, and the progress of successful cultivation.

The difference in quality of the fruits of the earth—more particularly remarkable in grain—though less distinguished in many places by the names of the districts in which the corn is grown, yet does not arise from any other cause than dissimilitude of soil and climate; and the utmost exertions of cultivation can only to a certain degree improve, but never effect any absolute change in the indigenous nature of its productions. This, iddeed, is generally admitted, so far as regards soils; but although they may be apparently of the same kind, yet their fertility is materially affected by climate, notwithstanding they may be situated in nearly the same part of the country, and with little variation of level; for although the heat indicated by the thermometer may correspond, yet the temperature of the air is varied according to the aspect of the land—whether exposed to the north or south, and the prevailing winds occasioned by the position of adjacent highlands and vales—and the seasons are thus rendered earlier or later. The natural situation of a farm—independently of its local connection with roads and markets—is therefore an object of the first importance, and affects its value much more than is commonly supposed for the estimation of all the vegetable products of this country depend with very few exceptions, upon the degree of heat which they enjoy during their growth; and it is well known that when the soil is dry, and the harvest early, corn of the same weight yields more saccharine matter than that which

is produced under less favorable circumstances.*

No two farms can indeed be found precisely situated, in point of soil, situation, climate, and exposure; and a very small difference in any of these circumstances will occasion a great diversity in their fertility; consequently no rules can be strictly applied to their management. It has, however, been justly observed, "that farms thus variously soiled are spurs to ingenuity—obliging their occupiers to break through those confined opinions and narrow prejudices which are too frequently contracted in countries where a uniformity of soil and regular routine of management prevail."†

From the vague manner in which soils are frequently described, and the various acceptation of the same terms in different countries, it is difficult for a farmer who reads an account of the agriculture in any other district than that in which he resides, to judge what relation such a soil may bear to that which he himself occupies. In some parts of England, any loose clay is called marl, and in others it is called loam; while this is defined by one to be a fat earth; and by another, a mixture of clay, sand, and calcareous earth, without stating the proportions. Regarding the latter, it has indeed been remarked by the late Mr. G. Sinclair, that, on referring to books on husbandry and gardening, we are directed to a hazel loam, a brown, clayey loam, or to a humid sandy soil, peat earth, garden mold, &c.; but the want of proper definitions of those terms is so perplexing, that it is really impracticable to determine what kind of soil is meant: thus, of upwards of fifty different kinds of soil and composts examined by him in various parts of the kingdom, those under the same name were found to differ greatly in their respective qualities. The method of determining the nature of soils by chemical analysis, has, however, been of late years so much simplified by Sir Humphrey Davy, that it is now in the power of every practical person to ascertain their properties, without much risk of being mistaken.‡

Composition of Soils.

The surface of the earth is composed of various descriptions of matter, chiefly minerals—viz:—clay, lime, marl, gyps, fluor, talc, sandstone, slate, quartz, and barytes. These are the names by which geologists distinguish the different kinds of rock, (whether in solid masses or pulverized,) which compose the superstratum, and which, when reduced to an incoherent mass, forms the soil, or what we call the arable staple of land.

In order to convey clear ideas of the componeats of arable soils, brief notices of the different earths may, in the first place, be given—in order to lead to a right understanding of how one kind of soil is more fertile than another, and also how any one may be improved by admixture with another.

Clay is an earth consisting of several varieties, differing in color, tenacity, and some other particulars. Blue clay is found in immense beds, under the channel of rivers, in the bottom of valleys, or forming the superstratum of hills, over chalk or limestone. Almost every kind of clay contains qualities favorable to vegetation; more especially those varieties which are decomposable by the action of frost, or the alternate effects of showers and sunshine. A surface of pure clay requires to be long under cultivation, before it becomes favorable for the operations of husbandry; but when thoroughly reclaimed, no description of soil yields more abundant crops.

Calx is lime combined with acids. To this description of earth, chalk, powder-chalk, and all the different sorts of marble, belong. The two former are found in vast masses, forming some of our highest hills on the south of England.—They no where constitute the arable surface, except on the margins of the hills formed of them; but are discoverable in a reduced or powdery state, in almost all our best soils. A portion of lime earth is an useful addition to all soils, particularly clays and dried gravel. Being attractive of moisture, it assists the effect of frost on clay, and gives consistence and coolness to light land in summer.

Marl is calcareous, or lime earth, mixed with clay. The common marl has a soft unctcous feel, and is found in thin strata, or in beds of considerable thickness, in various parts of the kingdom. A marl-pit of this description, is a valuable source of riches to the light-land farmer; a good coat of it bestowed on a sandy or gravelly field, effects the greatest improvement—not only by giving consistence to the staple, but also adding a fresh accession of vegetable food; and that called shell-marl acts powerfully upon the improvement of clays.

Gyps is calcareous earth saturated with vitriolic acid. This peculiar earth is found in a loose state at Glipston Quarry, in Northamptonshire, and in several places on the continent. In its solid forms, it receives the names of alabaster, plasterstone, or selenites. Being heated, it falls to a fine powder, which, when mixed with water, forms plaster. Gypsum has been highly extolled as a manure, particularly for grass land: yet its use, as we have already seen, has not been generally persisted in; but there can be no doubt that it acts as a powerful stimulant to vegetation, and probably future experience may induce its more frequent employment.

These are a few of the names given to the different earths found on the surface of our globe. In beholding their individual structure and stratified appearance, we cannot be otherwise than convinced that even the hardest were once in a state of fusion; and that the various strata have been, at greater or lesser intervals of time, superposed on each other, by the mighty agents of nature. According to their situation or composite character, these strata are denominated *first*, *second*, or *third* formations. Of these, other depositcs are formed, called *shifted formations*—because they have been removed from a first to a second place. In these transitions, fire, as well as water, has been active; as its effects in the disruption, transformation, and elevation of parts of the various strata sufficiently evince.

But it is to that grand convulsion of nature, the flood, and to many local and partial inundations which have since taken place, that the present habitable face of the earth has received its peculiar character as to the undulations, consistence, and qualities of its varied surface; for whether the land emerged from the deep, or was only overflowed for a time, the effects of the surface by the subsiding waters, would be the same.—Hence we see that the most ponderous and solid accumulations resisted the current, and the loose and lightest were removed to a distance; the different deposites taking place according to their specific gravities, or the strength of the current which bore them along. Of these different earths, deposited as we find them at the present day, the foregoing are the principal. The cultivable surface, or soil, is compounded of dissolved portions of these different earths, in various degrees of commixture, each possessing different properties and qualities, more or less favorable to the growth and sustentation of plants; and this according to the quantity of decomposed vegetable or animal matter they may contain. As they differ in constitutional composition, and as they are variously affected by the changes of weather, so also do they require different culture, as remains to be shown.

Clays.

From the brief description already given of this soil, it will appear that it is impervious to, and retentive of, water; and therefore the laying it as dry as possible is the first and only practical means of improvement. A clayey surface is generally undulating and declivous, consequently favorable for the operations of the drainer. Diagonal, or gently winding furrows, or underground drains, carry off water much more steadily and effectually than laid in direct or precipitous channels, because there is less hazard of the current being so impetuous, as to disturb the retaining sides, or block up, by drift, the openings of the drains, or course of the furrows. Hence we see in old husbandry, the propriety of, or the reason for laying the lands or ridges in such tortuous or winding directions, and withal so much gathered in the middle. By this disposition of the surface, water is effectually, though slowly, discharged; and the whole laid and kept dry.* In laying the surface in due form, the plough is the only efficient implement; but where local circumstances oppose the completion by the plough alone, the spade must be employed. Deep ditches are always necessary in a clayey country; for the soil imbibing but little of hasty showers, heavy rain, or melting snow, outlets should be numerous as well as capacious. Before undertaking an expensive design of underground draining, the depth of the surface stratum of clay should be ascertained; because, if it reposes on a bed of gravel, chalk, or stone, the surface water may be got rid of with but little trouble. Openings made through the clay, in places where surface water naturally settles, will probably allow all excess to sink.

It is hardly necessary to allude to the great advantages arising from the perfect drainage of a clay soil: it gives firmness to the surface, thereby facilitating all the operations of cultivation; it adds an extra warmth to the air above it; manures the crops earlier, and more perfectly; and renders all trespassing of cattle or carriages less injurious.

The next most important aim of the cultivator of clay land, is to counteract the natural tendency of it to *run together*. This can only be done by

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* This has been clearly established by the application of the *saccharometer*—an instrument invented for the use of maltsers, brewers, and distillers, for the purpose of ascertaining the strength and value of worts. The common standard by which the value of grain, of apparently equal quality, is usually estimated, is that of the weight in proportion to its cubical measure; and when the corn is to be manufactured into meal, this must ever be a primary object, though subject to many deductions, which also enter into the consideration of the miller. But among those who require it for the purpose of brewing, the saccharometer is a more certain criterion—as, whatever the weight of the grain may be, its strength, or nutritive power, will be in proportion to the quantity of the saccharine matter which it contains.

† Marshall's Rural Econ. of Yorkshire, 2nd edit., vol. i. p. 281.

‡ All soil contain sands of various degree of fineness, and impalpable earthy matter; when, therefore, the exact proportions in which these are combined in a soil are ascertained, it shows directly to what class it belongs—whether the loamy, clayey, calcareous, sandy, peaty, &c. Sir H. Davy, however, states, in his Agricultural Chemistry, "that the term *sandy* should never be applied to any soil that does not contain at least seven-eighths of sand. Sandy soils that effervesce with acids, should be distinguished by the name of *calcareous sandy soils*, to note the difference which exists between them and those that are silicious. The term *clayey* should not be applied to any land that contains less than one-sixth of impalpable earthy matter, not considerably effervescing with acids. The term *loam* should be limited to soils containing at least one-third of impalpable earthy matter; and a soil to be considered as *peaty*, ought to contain at least one-half of vegetable matter. These may be considered as the genuine characters of soils, and determined by a very simple process—that of washing the impalpable earthy matter of the soil from the sandy portion, and by drying and ascertaining their respective weights—when the application of an acid shows whether it belongs to the calcareous or the silicious kind of soil."—Sinclair's Hort. Gram. Woburn., p. 118.

* It must however be admitted, that great loss and inconvenience arise from this ancient mode. In undulating countries the lands are decidedly the best to be as nearly flat as the formation of the furrows will admit—and in low districts, the fall for the water is reduced in equal ratio with the raising of the ridges. This robs the furrows of their due portion of soil—keeps them so full of moisture as to prevent their being made, or kept, free from weeds and aquatic grasses—and renders all the operations of the husbandman more troublesome to perform. On sheep-farms these hollow furrows ought never to be seen, as the loss occasioned by the death of sheep, from getting "*overlaid*" in them, would amply repay the expense of levelling them, without burying the better soil.—For the mode of executing this work, see "Reports of Select Farms," No. V. Scoreby. P. 13, 14, in the Farmer's Series of the Library of Useful Knowledge.

deep ploughing, and incorporating with the staple any kind of friable earth—such as sand, chalk, marl, and manures of all kinds. These, besides enriching the land, keep it more porous, and consequently more penetrable by all atmospheric influences. The deeper the staple the more fertile it is, and also more manageable on all occasions. Any excess of rain received upon the surface sinks away therefrom to the bottom of the staple, or arable superstratum; and though it may be upheld by the undisturbed pan, it oozes imperceptibly away over it to the lower end of the slope.

Much attention is required with regard to the time, or rather to the state, of a clay soil which is about to be ploughed. If too dry, it breaks up in unmanageable clods, very difficult to be reduced to requisite fineness for sowing; and if too wet, it lies sodden in whole furrows, poached into holes by the feet of cattle, and altogether unreducible by the harrows. The due temperament is when the clods can be crushed without kneading under the foot or roller. In this state it may be got in order for any crop with the common implements.

The general character of clay farms is, that though the crops are abundant, they are cultivated at great annual expense. Great strength of teams and implements, and much tear and wear occur, in consequence of the more frequent need of fallows. When a heavy soil becomes foul with root weeds, there is no remedy like fallowing; its stubborn adhesiveness does not allow of freeing it from weeds, by any other means than by repeated ploughing, and exposure to a summer's sun. While the weeds are destroyed, the soil is ameliorated; and in autumn is fit to receive a dressing of manure, followed by wheat seed.—If pretty free from weeds, it may receive what is called a winter fallow—*i. e.*, ploughed in the autumn—lie all winter to be reduced by the frost—and in the spring it will be in order to have seed sowed upon it, as soon as it is dry enough to be harrowed. Some such clay soils are regularly fallowed every third year, which is certainly a great loss to the tenant, when not duly provided for, by the terms on which he holds his land, and indeed, in all cases, to the community; but there appears no remedy—at least, no profitable remedy. For notwithstanding machines have been invented, and much ingenuity exercised, to break and loosen the hardened surface of clay soils for the reception of seed, yet, though a passable crop might follow this breaking or rubbing (as it may be called,) of the surface, it was soon found that the deep-rooting perennial weeds were neither checked nor destroyed: so that the practice was soon abandoned. There is, however, some descriptions of heavy land where no fallowing is required. Wheat and beans, or other corn, and clover succeed each other alternately, and the weeds which are nurtured by the wheat, are kept under by the hoe during the growth of the beans. An opposite description of heavy land is called hungry clay: this is commonly mixed with gravel, impregnated with a considerable portion of iron ore. Very few plants enjoy themselves on this kind of soil, and it is only improvable by thorough drainings, liberal dressings of lime or chalk, and frequent dressing. In the neighborhood of chalk hills this kind of land is often met with, and is much improved by a coat of pure chalk;—to obtain which, pits are sunk in the fields down to the rock, whence the chalk is drawn in the manner detailed in Ch. XII. In all those countries where chalk abounds, the fields are indented with circular hollows, showing where the rock has been excavated below; and from the very many large dells to be seen in the same districts, now filled with fine old oak trees, it is evident that chalk—either as it is naturally found, or after being burnt into lime—was in very early times extensively used for improving the surface of the land.

Clay is improved by chalk, in consequence of the latter breaking the consistency of the former. If drawn and laid on in the autumn, the frost will reduce the lumps during winter, so that it may be ploughed in at seed time, or when the field is fallowed up. The pulverizing or reducing effect of chalk on clay is occasioned, as before mentioned, by its power of attracting, at all times, a large portion of water from the earth or air; and this being congealed by frost, swells and disturbs every particle near it. Its mechanical reduction of clay facilitates all operations, and renders it in every respect fitter for the growth of plants.—When chalk is burned and slaked by water, or in the air, before being laid on land, its effects are an immediate and powerful stimulant to vegetation, besides freeing the land from slugs and insects.

Calx or Lime.

It has already been observed that chalk, though one of the primitive earths, is never, in a pure state, found forming an arable surface. It is, nevertheless, present perhaps in all good soils; and from what has been remarked of its properties above, it should be the endeavor of the farmer to make use of it as much as possible;—though in saying this, it must be of course understood that it is to be employed with a due regard to prudence. It is equally beneficial to clay, sand, gravel, and peat-earthy soils; and though not, perhaps, the direct food of plants, is a prime agent in preparing vegetable or animal matter, already on the soil, to yield nutrition to all.

Caustic lime is supposed to be a preventive against that disease in wheat, commonly called smut; not only in preparing wheat seed, but by dressing the land with it before sowing. Whether it be a cure for this disease is, perhaps, questionable, because we know it is not in every instance effectual; but we are quite sure that the wheat crop will be greatly improved by such a dressing. Clover leys, intended for wheat, are much infested by slugs, which often, if not prevented, prove ruinous to the crop. In such a case, a liberal cast of quick-lime should be given before the plough, which will either kill, or so disable the slugs, that no danger need be apprehended from their depredations. If the lime be not given before sowing, it may be applied after the wheat is up if necessary. It may either be sowed by hand, from seed-kits, or from a light cart with shovels. Night sowing, when the dew is on the blade, is most effectual; because the slugs are then feeding. If rain fall soon after the lime is sown, its burning quality is lost, and no longer offensive to the slugs; in which case, another dose will be necessary.

Of the other descriptions of earths, there are only two combinations of them which are particularly interesting to farmers, viz.—sand and loam.

Sand and Gravel.

Sand, if dry, is easier and less expensively cultivated than any other. Though very subject to be infested by quetch, and other running rooted weeds, it is readily cleared of them. The crops raised on sand are sooner ripe, and some descriptions are of finer quality than those from richer and stronger ground; but the bulk is deficient in both corn and straw. The liability of sandy land to suffer from drouth is a great drawback on the profits of cultivation. In dry summers, the crops are sometimes hardly worth collecting. At the same time, no land pays better for improvement, provided the means are at hand and the force sufficient. Whatever application has a tendency to give it compactness, will also make it more retentive of moisture. For this purpose, clay, marl, chalk, or any other earth of a similar description, will greatly improve the staple. For sheep husbandry, a sandy soil is well adapted; the treading and tail dress of the flock is invaluable for such land.

Whatever has been observed relative to sand, is equally applicable to *gravels* and all other light land liable to suffer from drouth.

Like sands, they possess various gradations of quality, from almost absolute barrenness to great fertility. The former are in general termed *hungry soils*, from their tendency to absorb manure without any corresponding benefit to the land; but as their staple becomes firmer by the admixture of other earth, so do their properties improve. The richer kinds produce every species of grain, and though the looseness of their texture renders them less suited to the cultivation of beans and wheat, yet they are admirably adapted to that of Lent corn. The quality of the grain is likewise good; and being also favorable to the growth of leguminous crops, and artificial grasses, they are commonly called *turnep soils*, from that root being generally cultivated on such land. It may be worked as arable land in any season, and is sound enough in grass to bear stock in winter.

Sometimes clay and gravel lie in alternate strata, *cropping out** on the sides of hills. This is one of the worst descriptions of arable land, in consequence of the great number of land-springs flowing out of it; difficulty of drainage, and its liability, (in consequence of stones and clay being so firmly bound together) to become impenetrable by the plough after a dry time. It is in this species of land, too, that we often find both the gravel and clay tinged with the oxide of iron, than which nothing is more injurious to corn crops.

There is another kind of land, very widely spread throughout our southern counties, which, though not properly of a gravelly nature, yet is so intermixed with loose stones of a moderate size, as to bear some resemblance to soils of that description. The staple, indeed, is more commonly of clay than sand, and the stones are chiefly *flints*; which may be justly supposed to affect the quality of the earth with which they are mingled, by imparting to it something of their calcareous nature, for the land in which they are found is generally fertile. There is in Yorkshire a singular species of it, called red-stone land, which is composed of loams of different qualities, intermixed with a greater or less quantity of soft sandy stones, about the ordinary size of flints, and of a dark yellow or orange color; a species of grit or free-stone. The cultivated soil is in some instances, nearly half of it made up of these stones, and Mr. Marshall describes it as "beyond dispute one of the finest corn soils in the kingdom."† He likewise mentions instances—which we have also witnessed in some parts of Kent—of great quantities of these stones having been gathered off as an incumbrance to soil, by which its productiveness was much lowered; but the stones having been returned, it was restored to its former state of fertility.

Loam

Is the name given to that kind of soil which appears to be an intimate mixture of all other earths reduced to a fine and equable state. It is of different colors. On elevated table-lands, it is mostly red; on gradual slopes it is yellow or hazel; and in the bottom of valleys it is almost black. The two first appear to be deposited from the general, the last from partial, floods. It is found reposing on stone, on clay, or on gravel of various depth, sometimes in deep beds, but, in general, always deep enough for every purpose of the farmer. Its consistence is friable; readily admitting air and rain, and as readily discharging all excess of the latter, only retaining or imbibing from the air as much as is necessary to vegetation; and neither liable to be parched in summer, nor drenched and chilled by surface water in winter.

Loam in its uncultivated state, always contains a notable proportion of that nameless peculiar quality, so nourishing and stimulating to plants, known only as the constituent of virgin or maiden earth—*i. e.*, unexhausted earth. Whatever this quality may be, it is not only more abundant, but also much more permanent in loam than in any other description of arable land. Besides this property, the facility of its culture must not be forgotten. Except in hard frost, or immediately after a heavy fall of rain, it is ploughed at any time with ease and regularity; harrowed, scarified, hoed, by horse or hand, and rolled effectually. Such a soil rarely suffers from drouth, nor are floods ever dreaded. If, from neglect, it be overrun with weeds, they are soon extirpated; and if impoverished by mis-

* A term used by miners to signify the highest edge of the bed of coal, &c., or where it appears on the surface.

† Rural Economy of Yorkshire, 2nd Ed. vol. ii, U. p. 280.

management, it is quickly recovered. It is suitable for every kind of crop, and every system of husbandry; and whether for corn or grass, yields the greatest profit to both landlord and tenant.

Such being the history of a loamy soil, it is coveted by every cultivator, and every industrious one endeavors to bring his land of an opposite character as near to the standard and nature of loam as possible. The expediency of such attempts is universally admitted; but it is only under particularly favorable circumstances it can be accomplished to any great extent. Covering a large field of sand with clay, or of clay with sand, is a formidable affair, which but few can undertake. Still, as there can be no doubt of immediate advantage and ultimate success, such an amelioration should never be lost sight of by the farmer of either a too light or too heavy a soil. Sometimes the opposite qualities lie contiguous, and in a course of years may be brought to improve each other. And though, in many cases, the desired quality may not be on the surface, it may happen to be found at no great distance below, sand and clay being often found stratified with each other.

There is also a species of rich loam which, under the name of *alluvial soil*, is understood to mean land which has been gained in low situations by deposits laid by the overflowing of streams from higher grounds, or by the artificial process of warping from the turbid waters of muddy rivers, as well as by slimy matter, thrown up by the tides, and afterwards embanked. This contains a large proportion of vegetable and animal matter, which gives it a dark color, and produces almost inexhaustible fertility; but the quality of its products, though luxuriant to the eye, are not, as we have already had occasion to remark, equal in nutriment to those grown on drier land. This is not alone observable throughout our own country, but in every other part of the known world; thus, in Valencia, one of the most highly-cultivated and the richest districts in all Spain, the soil, though rendered wonderfully fertile, through a regular command of water by tanks constructed in the time of the Moors, and appropriated to irrigation, yet its products are found so deficient in real nutriment, as to have passed into a proverb expressive of their inferiority in the power of imparting vigor.* So, also, in a large lowland quarter of the island of Martinique, called the *Lamentin*, nothing can exceed the apparent richness of the vegetation; the canes grow to immense size, but the sugar, though beautifully white, is almost an impalpable powder, so scantily possessed of those crystals which constitute its saccharine strength, that it decomposes when carried across the Atlantic, and is almost useless to the refiner.

Peat.

Besides the above mentioned earths, there is a class of others called *inflammables*, from their property of being combustible. These are coal, bitumen, peat, &c., which, when reduced to powder, and incorporated with, or even spread on, the surface, act beneficially on vegetation. The ashes, too, of these minerals, are a good dress, especially for cold moist soils.

That which falls under the denomination of peat, is distinguished in its natural state from every other kind of soil. It is formed of successive layers of heath and other coarse herbage, which spring up and decay upon the sward, without having a temperature of sufficient heat to effect their entire decompesition; but being aided by a certain degree of humidity, they continue to produce other plants, which at length constitute that mass of vegetable matter, which is so common in Ireland and Scotland, and our northern countries, under the names of bog and peat. It is of a dark color and spongy texture; full of fibrous particles in a partial state of decay; tough and elastic; and when dried becomes inflammable. From this description, it might be supposed that it contains the chief elements of fertility; yet experience proves the contrary: for it is found, when in a state of nature, to be so completely barren as hardly to deserve the name of soil, until art and labor have been exerted to bring it into a state fit for tillage. By these means it has, in some instances, been brought to the consistence of a light kind of soil, extremely well adapted to the culture of potatoes and other tuberous roots, as well as the lighter species of grain and flax, and somewhat resembling loam. It indeed wears the appearance of a rich mold, and may thus deceive an inexperienced eye; but, unless greatly ameliorated by the mixture of some solid earth, it is found, on closer examination, to be loose and porous, quickly saturated with water, and too easily discharged from it.

A late writer on the subject remarks, "that when we consider the vast extent of the masses of this bog, which, in the cold and temperate regions, overspread so great a portion of the surface of the earth, and which, though full of vegetable matter, is yet little friendly to vegetable life, we may believe that in its history, in its nature, and in its uses, it presents many materials to the agriculturist for inquiry, which may illustrate the means of either converting it into a soil or into manure, for the improvement of other lands: but it must be confessed that these important inquiries have not all been so perfectly answered as is to be desired; and that much yet remains to be learned of the nature and the uses of peat-moss."*

It only remains to be noticed, that there are two other constituents of soils, namely, *salts* and *metals*, and which, where they abound, have a powerful effect on plants. Of the latter, iron is the most frequent, and, when in excess, is prejudicial, especially to corn crops. The ores of other metals, as lead and copper, are also hurtful to vegetation; but this only appears in the near neighborhood of mines.

Of salts, there are many descriptions found in land springs. Sea, or common mineral salt, though not a food of plants, is, notwithstanding, a useful ingredient, particularly in dry soils. Its great affinity for water assists summer crops wonderfully. It is also an excellent cleanser and renovator of exhausted soils. Slugs will not live where it is in any sensible quantity; and while it is grateful to cultivated plants, it appears to be offensive to moss and all diminutive weeds. Its use as a dress is too much neglected by farmers.

There is thus an endless variety in soils, and those of apparently equal fertility are almost all differently composed. A certain knowledge of chemistry is necessary to ascertain in what those differences consist; for it is in the accuracy with which they are described that the best modes of remedying their defects, and improving them by the application of either lime, clay, sand, or other fossil substances, can be discovered. Farmers, however, generally contrive to obtain a tolerably correct notion of their imperfections by a comparison with the soils of their neighbors, and thus experience in such cases supplies the want of science. The sure indications of a good soil are commonly to be found in the state of the hedges and timber, especially oak and ash—full, wide-spreading tops presenting an appearance of luxuriant growth; whereas, if stunted, it is a certain sign that the land is poor. The weeds, natural to peculiar soils, are also strong proofs of either poverty or fertility. Land is, in certain cases, also to be distrusted, although the crops upon it may be fine; for they may have been forced by over manuring, and thus brought to a condition which it may be found very difficult to continue: while, on the contrarary, good land, though exhausted by improper cropping, may be easily restored by judicious management.

Few soils are so ungrateful as not to pay the expense of improvement, provided the money laid out upon them be applied with judgment. Many tracts of the poorest sand have been rendered fertile by judicious dressings of clay, loam, or marl, and other thin and hungry soils, have been improved by the application of similar substances; while those of the sourest description have had their acidity corrected by lime, chalk, and ashes. It should, however, be borne in mind, that land, of any description, which is retentive of water, can never be rendered fit for the plough until it has been completely drained; for otherwise, the operation of tillage cannot be accomplished in due season. Its state will have a direct and prejudicial effect upon its productive powers; and manures can never communicate their full benefit to any soil which rests upon a wet bottom.

Auction—Farm for Sale.

I WILL sell without reserve a Farm of about 200 acres of land, lying in the town of West Bloomfield. This farm is situated on the main road leadidg from Canandaigua to Buffalo, one hnndred acres on each side of the road; that on the south side has buildings on it—that on the other has none. There is abont 25 acres of wheat on the groun . This farm can be sold in two separate lots, if it is the choice of purchasers. Those who wish to buy are requested to call and examine the premises before the day of sale, which will take place on the 12th of January next, 1837.

Likewise, at ths same time and place, from 240 to 260 first rate Sheep, from 40 to 60 tons of good Hay, Wagons and Harness, Farming Tools, Household Furniture, some Lumber, and other articles too numerous to mention.

Terms liberal and made known on the day of sale.

PHINEAS M. SHEPARD.

West Bloomfield, Dec. 3, 1836. dec 10-f3t*

Fine Sheep.

THE subscriber offers for sale, at his residence in East Bloomfield, three hundred full blooded Merino Ewes, and five hundred fine Saxony Ewes, all young and in fine condition. Also, a lot of fine Merino and Saxony Bucks, pure blood. All have been selected by good judges, and with care as to fineness and heft of fleece.

LEONARD THOMPSON.

East Bloomfield, Ontario co. Dec. 1, 1836. f3t*

DURHAM CATTLE.

I WISH to sell my thorough bred improved Durham Short Horned Bull ROMEO, and Cow FANNY BOLIVAR, (with a Calf by her side.)

PEDIGREE OF ROMEO AND FANNY BOLIVAR.

ROMEO,

Red and white, calved in May, 1834; got by Cherry; dam Fanny Bolivar.

FANNY BOLIVAR.

Red and white, calved Dec. 16, 1829, bred by Thomas Williams of Chelsea, near Boston; got by the imported bull Bolivar; dam the imported cow Flora. Flora, calved in 1817, got by La Fourne's bull; dam a full blooded Durham Short Horned cow by Comet. Bolivar, "the sire of Fanny Bolivar," bred by Mr. Whitiker in England, imported by Col. Powell of Philadelphia.—See Herd Book, 2d vol. p. 24, No. 804.

CHERRY, "the sire of Romeo," was got by Lucifer out of Beauty, Lucifer got by Dishley, (a thorough bred Durham bull, imported in 1821 by Geo. Brintnell, Esq. of New Jersey,) out of the imported Durham cow Cherry, and got by Lancaster, who was sold in 1818 for 621 guineas. Cherry was got by a son of Comet, dam by Marsk; Marsk was got by Favorite, the sire of Comet; Lancaster was got by Wellington, and Wellington by Comet. Lancaster's dam, Moss Rose, out of Red Rose, by Favorite; dam by Favorite; gr. dam by Ben; g. gr. dam by Foljambet; g. g. gr. dam by Hubback. Beauty, the dam of Cherry, imported by De Wolf, was got by Samson out of a full bred Durham cow. Samson was got by Ossian, and Ossian by the celebrated old Comet.

I also have several half and three-fourth blood, which are fine. A. REYNOLDS.

Rochester, Nov. 22, 1836. nov 26-f4t

100,000 White Italian Mulberry Trees,

OF one to four year's growth, for sale at Gasport, Niagara co. by J. TIMERMAN.

* It is not very expressive of gallantry, and runs thus:—

"*En Valencia, la yerva es agua,*
La carne es yerva,
Los hombres son mugeres,
Y las mugeres—nada."

In Valencia, the grass is water,
The flesh is grass,
The men are women,
And the women—nothing.

* Mr. Low, on the Classification of Soils, Quart. Jour. of Agri., N. S., vol. i. p. 30.

Education of Farmers and Mechanics.

It is conceded on all hands, or ought to be, that farmers and mechanics constitute two of the most important and useful avocations of society. So important are they to civilized communities, that there is little misplace in classing them as the props and pillars of the body politic.

It has always seemed to us that, in imparting some of the prime privileges and blessings of society, there may be charged a partial neglect of their rights; and that in no respect is this more apparent, than upon the subject of education.. Not but what our free schools and colleges are scattered over the land, and, to a certain extent, they are open to all: But we have never believed that these were exactly adapted to the wants of the great classes we have been speaking of. It may be well for all classes in community, providing they have sufficient time and means, to go the rounds of a thorough classical education—but the remark need hardly be made, that not one in a thousand ever has opportunity to do so. And yet there is not a boy in community, whatever may be his intended pursuit, who should not have an education of some kind.

This is the very point to be considered. What shall that education consist in? Shall the farmer learn nothing but what is necessary to enable him to sow and reap, or follow his plough? Or shall the mechanic gather only the principles of striking the anvil or shoving the fore-plane? Shall the very avocations in society, acknowledged to be of the most utility and importance, to be left without the proper institutions to impart that kind of education adapted to their different pursuits?

If the subject is looked upon as it should be, we think there can be no difference among intelligent minds. We believe that there should be a more judicious division of the means of education. Institutions of instruction ought to be reared on the basis of imparting only that kind of education, which shall be more peculiarly adapted to the intended pursuits of the pupils in after life. Our seminaries of learning should be built on a more practical foundation. If the pupil intends to become an agriculturist, he ought not to be required to throw away much of the most precious period of his life in reading Greek or Latin. He wishes to attend to those studies that lay in the path of his future pursuits—such as Chemistry, Botany, Geology, etc. So with the mechanic, and so with the merchant and any calling in civilized society. Education is only fulfilling its proper office, when it is adapted to the every day pursuits and business of life: and there exists no reason in the world why there should not be educated farmers and mechanics, as well as educated lawyers and divines.

We are aware that our country is blessed with intelligent, educated farmers and mechanics; but they have become so in spite of the disadvantages under which they are placed. They have soared above every difficulty, on the mighty pinions of their own minds—and we glory in the triumph of intellect which they exhibit. But while our vast and rapidly extending country abounds in colleges and seminaries of learning, where are your colleges for mechanics or for farmers? Where shall they send their sons to gain a thorough practical education, adapted to the avocations they intend to pursue in after life.

There is sometimes indicated a disposition to deride any idea of imparting education to farmers and mechanics. But this is to shallow for the bestowment of thought. Let education become as universal as the general air—let it be stayed in the work shop, and linger in the field—let it go into the business and bosom of practical life, guiding, cheering and elevating. Then will it fulfil its high and holy destiny, in rendering men social, thinking, reflecting beings, and imparting the only true weapons for the defence of the great principles of human liberty.—*Saturday Courier.*

Chemistry for Farmers.

METALS.—We have now enumerated most of the simple bodies, excepting a class comprehended under the name of *Metals.* Formerly the term, metal, denoted a heavy substance, which had a shining lustre, more or less brilliant; but latter discoveries in Chemistry have proved that these qualities or properties are by no means the only distinctive ones which metals are found under. Some metalic substances are found to be ligher than water, and so eager to combine with oxygen that instead of taking a great heat to melt them, they instantly take fire and burn in common air—-others again remains liquid at common temperatures—others again are so difficult to be melted that the greatest heat of our furnaces will not do it. From this diversity of properties, it seems necessary that they should be grouped or classed into distinct classes—each class combining similar properties.

As a general rule they will combine with oxygen, and form what is called metalic oxides. Some undergo this union in the common air,—by simple exposure as iron becomes oxidized or rusty—while others require heat or some other method to combine them with oxygen—thus gold and silver will not become oxodized or rusted in the open air. Most of them will, after becoming oxodized, unite with acids, and be dissolved, forming what are called *metalic solutions*, and metalic salts—thus iron, after it becomes oxodized, will be dissolved by sulphuric acid and form the sulphate of iron or *copperas.* The metals after having become oxodized may be again liberated by any process which will drive off the oxygen. Thus red lead, which is nothing but lead and oxygen, may be *reduced* as it is called, by heating it in a close vessel with fine charcoal; the charcoal combines with the oxygen which the lead had with it, and the lead is freed from it.

Most if not all the metals are *combustible*, or will burn. Iron will burn with a bright sparkling light, as is often seen in blacksmiths' shops. Zinc will burn with a brilliant white light. The product of their combustion is an oxide.

Many of the metals unite with each other. They then form what are called *alloys.* These alloys differ in their properties from either of the metals of which they are formed. Thus brass is an alloy of zinc and copper, but it is not like either. Many of the alloys are very valuable and useful in the arts. Others are not known to be of any use. There is no doubt that many very useful alloys will hereafter be made which are not known; for when we consider the number of the metals and the great variety of combinations which may be made from them, we cannot but suppose, that but very few of these combinations which can be made with them, have yet been made.

It may surprise some of our readers to learn that potash, and common sea salt, contain a metalic substance; and the good house wife, when she dissolves her *salaeratus*, or pearlash, the worthy farmer when he salts down his winter store of beef and pork, little dream that they are using a metalic compound for this purpose. This however, is the case. The metal which is contained in these substances is not like most of the others. It is lighter than water. Wil take fire in the open air, and is never seen, unless the Chemist extracts it with much labor and care, and keeps it out of the contact and reach of common air. This was discovered by Sir Humphrey Davy. Before his day the substances were considered simple bodies by themselves. Three of them were called alkalies, viz: Potash, Soda, and Ammonia—-others of them were called Earths, such as Lime, Magnesia, Barytes, &c., and the remainder were grouped under the term metals.—*Maine Farmer.*

Improve your Evenings.

As the season of long evenings is near at han we feel anxious to impress upon the minds of our young friends, the importance of spending them in some appropriate and useful manner. Such are the facilities for the dissemination of knowledge at the present day, that every individual can have access to the best of books and newspapers. Depend upon it, you will never have occasion to regret such a use of your leisure hours. You will not only, in this way, sow the seeds of usefulness and enjoyment in after life, but you will derive immediate benefit and gratification, and secure the respect and confidence of all around you. If you have but one hour to yourselves each day, learn to improve that hour to the very best advantage. You can, most of you, contribute something of value to the columns of this paper, for if you give your minds to reflections and profitable speculation, and if your reading is attended to, you will soon find it an easy matter to write.

To those who feel interested in the effort now making to increase their leisure time, we would say, be sure and improve what leisure you now have, or it will be in vain to hope for success.

Improvement in Rail Roads.

A letter from Judge Wright, intended for the November number of the Journal of the American Institute, says: "I have examined the model of a rail road car and rails adapted thereto, now at the American Institute, invented by Dr. Plantou, of Philadelphia. The action of the car whereby the forward motion given to it, adapts itself to curves of small radius, as well as tangent lines, is new to me, and appears to possees the very valuable property of greater security against running off the track, and also against breaking the axle. These are the causes of nearly all the injuries to limb and loss of life, which happen on our present rail roads. If Dr. Plantou succeeds in introducing his improvements in form of cars, and rails suited to them, he will be entitled to be called a public benefactor, and will place the public under very great and lasting obligations.

REMARKABLE CIRCUMSTANCE.—A swarm of bees was found hived in a small thorn bush, on the farm of Mr. John Brooks, in this county, about the first of last month. The bees have made something like half a bushel of rich well filled comb when discovered. Mr. Brooks has cut up the bush and removed them to his garret, where they continue to work. This is one of the most remarkable freaks we ever heard of—the bees must have lost their usual instinct. Some gentlemen, we understand, attempt to account for it, by supposing the queen bee had received an injury, which rendered her unable to proceed farther.—*Staunton Spectator.*